DOCUMENT RESUME

ED 422 536 CG 028 605

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TITLE Initiation into Alcohol Use in East and West German Adolescents.
PUB DATE 1998-06-00
NOTE 21p.; Paper presented at the Biennial Conference of the European Association for Research on Adolescence (6th, Budapest, June 3-7, 1998).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adolescents; *Cross Cultural Studies; *Drinking; Foreign Countries; *Parent Influence; *Peer Influence; Young Adults
IDENTIFIERS *Germany

ABSTRACT

This paper investigates the patterning and positioning effects in the onset of drinking in East and West German adolescents and young adults. Differences between the timing of first drinking (positioning effects) and differences in influences on the timing of initiation (patterning effects) are studied. Four reasons for studying the age of onset of drinking are given: low frequency of problem use, risk factor of later misuse, risk factor of later legal and illegal drugs, and cohort effects. Risk factors related to age at onset of drinking and previous findings are reviewed. Cultural differences between East and West Germans that influence the early onset of alcohol use are discussed, and gender differences are investigated. Two samples of 13 to 29 year olds were gathered in both East and West Germany, one in 1991 (N=3,824) and the other in 1996 (N=3,086). A Cox Regression analysis (hazard model) was used in analysis of positioning effects (i.e., the transition from no experiences of drinking to the first whole drink). The investigation of timing or patterning effects utilized measures of parental variables, peer variables, and pubertal timing. Differences between East and West German samples are presented in five tables and two figures and discussed. Correlation of the age of onset with reported frequency of use is presented. Interaction effects and possible differences between the 1991 and 1996 samples are explored. (Contains 29 references.) (EMK)

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ED 422 536

Initiation into Alcohol Use in East and West German Adolescents

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Initiation into alcohol use in East and West German adolescents

Martin Pinquart & J. Gowert Masche

Paper presented at the sixth biennial conference of the European Association for Research on Adolescence, Budapest, June 03 – 07, 1998.

Cross-cultural research is focused on cultural differences in the expression of psychological variables – which is called positioning effect - and on cultural differences in the association between variables, the so called patterning effects (Feldman & Rosenthal, 1994). In the following paper we address patterning and positioning effects in the onset of drinking in East and West German adolescents and young adults. First, we will analyze differences between the timing of first drinking in East an West Germany (positioning effects). Second, we will investigate East-West differences in influences on the timing of initiation (patterning effects).

Drinking alcohol becomes normative, at least in a statistical sense. Nearly all teenagers have tried alcohol by the time they graduate from high school. Drinking alcohol seems to be widely accepted, at least in late adolescence and adulthood. If drinking alcohol is an aspect of normality, we should ask if it is of scientific interest to investigate the onset of drinking in adolescence. Four arguments for studying the onset of drinking will be given:

First, when studying young adolescents, initiation of substance use is more appropriate to investigate than problem use, because at this age the frequency of problem use is relatively low, and problematic substance use may not develop for several years.

Second, an early onset of drinking is a risk factor of later misuse. Rachal et al. (1982) revealed that misusers begin drinking at an earlier age than „normal users". In particular, an onset before the age of 12 seems to be a risk factor of later heavy use of alcohol (Barnes & Welte, 1986).

Third, an early onset of drinking may increase the risk of the later use of other legal and illegal drugs (Tschann et al., 1994).

Fourth, concern has been expressed that children are initiating substance use at younger and younger ages. However, little research has focused directly on age at onset. Cohort effects were investigated by Clayton, Voss, Robbins and Skinner (1986). For women, median age at first use of alcohol has dropped by almost two years across three decades. For men, however, there were no cohort differences.

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The age of first initiation into alcohol use

In an analysis of 11 to 15 year-old adolescents of several countries of the European Community, 25% claimed to have had their first drink before the age of 11 (28% of boys and 21%

of girls; Commission of the European Communities, 1991). German adolescents came at an average place with 20% reporting experiencing their first alcoholic drink before the age of 12. In an American sample, Kandel and Yamaguchi (1985) showed that almost 20% had used alcohol by the age of 10. In the initiation into alcohol use, most adolescents drank sparkling wine (46%), beer (36%), or wine (22%), but only a minority used hard spirits (6%; Commission of the European Communities, 1991). We infer from this, that first experiences with alcohol take place in celebrations and are not part of everyday habits. In early adolescence, the rate of initiation increases sharply. Between the ages of 12 and 14, about 70% drank their first alcoholic beverage and by 14 almost 90% had been initiated into alcohol use (Hurrelmann, 1994).

In a study on the timing of first alcoholic intoxication of Barnes and Welte (1986) about 14% reported this experience before the age of 12, and about 28% between the ages of 12 and 13.

Influences on the time of initiation

Which factors predict an early onset of drinking? There are several theories on adolescent substance use that have recently been systematized by Petraitis, Flay, and Miller (1995). They distinguished three groups of influences, interpersonal variables, attitudinal variables, and (other) intrapersonal variables. In this paper we focus on cultural and social influences on alcohol use, and on influences of physical maturation.

First we will discuss differences between East- and West-Germans in the onset of drinking. Previous studies have shown that adolescents in the East were more favorable disposed towards alcohol. Whereas 20% of the Eastern sample agreed with the statement that a party without alcohol would be boring, only 10% of the Western subjects did so (Simon, Bühringer & Wiblishauser, 1991). The more positive attitude to alcohol use in East Germans may reflect restricted opportunities in the use of their leisure time (for example, most youth centers were under control of the governmental youth organization). In addition, a larger consumption of alcoholic beverages in the parent generation in the East (Silbereisen, Robins & Rutter, 1995) may have served as adolescents' role models.

The reported more positive attitude to alcohol use in the East should increase the willingness to use alcoholic beverages. The assumption that alcohol use was more widespread in the East is supported by data showing a higher percentage of daily use of beer in East German adolescents (Simon et al., 1991). However, other studies on alcohol use found only small East-West differences (Simon & Wiblishauser, 1993).

Perhaps not surprisingly, in an analysis of initiation into alcohol use, data of the National Center of Health Education (1994) revealed a somewhat earlier onset in East Germans. In 12 to 13

year old adolescents, a higher percentage of East Germans were initiated into alcohol use. In older age-groups, however, differences disappeared. On the other hand, Simon, Tauscher, and Gessler (1997) found no East-West differences in the percentage of 14-17 year old adolescents reporting first intoxication. So we would expect only small differences between East and West in the onset of drinking. In addition, we assume that at the second time of measurement, East-West differences should decrease, because during this time the living conditions in both parts of Germany had become closer. To test this assumption, we will compare cross-sectional data from 1991 and 1996 on the onset of drinking in East and West Germany.

Because previous research identified gender differences in the onset of drinking, showing a tendency with boys towards an earlier onset, we will also investigate this variable.

However, among the younger cohorts there is an apparent convergence between the sexes in the age at initiation of substance use (Clayton et al., 1986). In a study by Simon et al. (1997) of people aged 12 to 25, a greater percentage of men reported that they had already experienced an alcohol intoxication. In our research we try to replicate this finding.

[Insert Table 1]

As shown in Table 1, there were two samples of 13 to 29 year olds in East and West Germany. Out of the first sample gathered in 1991, we were able to analyze data of 3824 participants. Out of the second sample interviewed in 1996, we analyzed data from 3086 adolescents and young adults drawn from a large study on influences of the German unification on development in adolescent and young adulthood, supported by the German Research Council. 50% of our participants were males. Participants were asked about the first time they „had a whole drink". In the previous literature, most times adolescents were asked about the first time they drank alcohol. However, these answers often reflect the first tentative sip of wine or beer during family celebrations without any psychoactive effects. In our study a somewhat higher criterion was used. It is assumed that having a whole drink means more than sipping, but the first perception of effects of alcohol use without necessary getting drunk. This assumption is supported by our data showing an occasional use of small amounts of alcohol during the last year in 64% of those saying that they did not yet have their first whole drink.

In our first step of analysis we computed Cox Regression analysis (Cox, 1972). Cox proportional hazard models estimate the timing of events in samples in which not everyone has experienced the event until the time of measurement. If we would drop those cases who did not have their first whole drink, our results would be biased downward, because the dropped cases represent persons with later timing. Cox regression is one method for analyzing event data without

this bias of information. We compute a „survival function" of the transition from no experiences of the first drink to their first whole drink. This function depicts the percentage of people who experienced the event starting with the age when noone has experienced the event yet, and ending with the age when everyone ist expected to have experienced the event. Cox regressions estimate the effects of continuous or categorical variables on the hazard function.

As independent variables, we used the time of measurement (1991 versus 1996), the region of origin (East versus West Germany), gender, and the interactions between these variables.

[Insert Table 2]

Our analysis shows highly significant main effects of region and gender, a tendencial effect of time of measurement, and at the 10%-level, an interaction of region and time of measurement. As can be seen in Table 2, East Germans reported an earlier onset of drinking compared to West Germans.

The effect of the predictors is shown by the change in the likelihood of an event associated with a one unit change in the predictor (Exp (B), Yamaguchi, 1991). For example, comparing East and West Germans, a coefficient of 1.18 indicates that the likelihood of the transition towards drinking is 18% bigger at any given age in the East German sample, compared to West Germans.

[Insert Figure 1 about here]

As can be seen in Figure 1, the median age of having the first drink in 1991 was about 14 years in the East Germans and 15 year in the West Germans. Comparing East and West, 2.2% of the East Germans and 1.8% of the West Germans reported their first whole drink before the age of 12. . In addition, men started drinking earlier than women. Men reported an earlier age of initiation than women.

The main effect of the time of measurement shows a somewhat later onset in 1996 compared to 1991. In addition, the small interaction of time of measurement and region shows that there is a later onset in the East-Germans in 1996 compared to 1991, whereas in the West German sample differences between 1991 and 1996 remained very small. As can be seen in Figure 2, in the East Germans the median age of onset increased to about 14.7 years. On the other hand, the median age of onset of drinking in the West Germans did not change between 1991 and 1996.

[Insert Figure 2 about here]

Our data support results of the German National Center of Health Education on a somewhat earlier onset of drinking in East Germans. East-West differences are highly significant because of large sample-sizes, but the absolute size of the difference was found to be small. This is in line with previous research on initiation into alcohol use and on the amount of alcohol consumed in East and

West German adolescents and young adults (Simon & Wiblishauser, 1993; Simon et al., 1997). In addition, the comparison of the 1991 and 1996 data indicated that East-West differences were in decline. We could interpret this as sign of increasing similarity in the timing of developmental transitions. However the effect size of the statistical interaction was small; so we should interpret the differences with caution. Comparing the 1991 and 1996 data, we found no evidence for the assumption of an increasing earlier initiation of alcohol use (Clayton et al., 1986; Grady, Gersick, Snow, & Kessen, 1986). On the contrary, there was a somewhat later onset in the 1996 sample. This fits to the tendency of lowered alcohol consumption in Germany during the 80s and 90s (Breitenacher, 1997; German Center for Health Education, 1994).

Because of the broad age range of our sample, and the possibility of errors due to problems of remembering in the older participants, we did additional analyses with the subsample of the 13-19 year olds. In these analyses we received similar coefficients, although a part of them was no longer significant due to the smaller sample size.

In the next step of our analysis we analyze influences on the onset of drinking in East and West. We assumed that the same developmental influences would work in both parts of Germany, because previous studies on psychosocial development in the Eastern and Western part of Germany found more similarities compared to differences (Silbereisen, Vaskovics & Zinnecker, 1996). Three influences will be analyzed, parental variables, attitudes of peers, and pubertal timing.

Parental variables. Brook et al. (1990) developed a complex theory on parental behavior and interpersonal characteristics of adolescents as influences on substance use: Parents who provide little support and supervision increase the risk of a variety of problems during adolescence, including involvement with substance-using peers and experimental substance use.

Kandel and Andrews (1987) distinguished three kinds of parental influences: parental substance use (imitation), parental alcohol-related attitudes (social reinforcement), and closeness of the parent-child bond. Whereas Kandel and Andrews (1987) showed a direct influence of parental alcohol use on adolescents' initiation to alcohol, two other studies of Andrews, Hops, Ary, Tildsley and Harris (1993) and Webb et al. (1991) did not replicate this finding. Mothers' and fathers' positive attitude toward alcohol predicted an earlier onset of drinking in the study of Andrews et al. (1993) but not in the research of Kandel and Andrews (1987). Mothers' cautionary statements regarding alcohol were negatively related to the initiation of alcohol use. On the other hand, fathers' cautionary statements did not influence the time of first alcohol use.

We will focuse on indirect parental influences on adolescents' initiation into alcohol use. Parental monitoring characterizes interest in and control of adolescent's behavior. If we ask children

and adolescents how much they tell their parents about their behaviors and attitudes, monitoring may measure closeness to parents, too. We hypothesize that higher parental monitoring is associated with later onset of drinking. Our assumption is supported by research on drug sampling by Chilcoat and Anthony (1996). In their study, higher parental monitoring reduced the risk of initiation into substance use (including alcohol, tobacco, marijuana, cocaine, or sniffing drugs). In the subgroup with lowest parental monitoring, there was a two year earlier onset of substance use. We want to generalize this result to the onset of having the first whole drink. Perceived parental monitoring was measured by a four-item scale, asking if respondents reported their use of spare-time and other personal activities to their mothers and fathers during the age of 6 to 12. There were four alternatives ranging from always to never. The four-item scale had a reliability (Cronbach's Alpha) of .78.

In addition, we want to analyze the influence of parental education on the onset of drinking. From research findings tt has been suggested an earlier onset in lower social classes because of a lower quality of parenting, higher parental alcohol use, and higher risk of association to deviant peer groups. However, Tschann et al. (1994) were not able to find an influence of parent's education on the timing of onset of drinking. In addition, studies on substance use report only small associations between social class and the use of drugs which reached statistical significance only in the case of extreme poverty in conjunction with childhood problem behavior (Hawkins, Catalano, & Miller, 1992).

Peer-variables. Two aspects of peer influences on the onset of drinking have been extensively examined in developmental research, namely, perceived alcohol use of peer group members and their perceived approval of substance use. Perceived alcohol use by peers may bring about the modeling of this behavior either by direct imitation or through disinhibition. Perceived approval consists of beliefs about peer approval or disapproval of substance use and is generally regarded as operating by means of social reinforcement (Kandel, 1985). In the research of Morgan and Grube (1991) perceived use of alcohol (of friends or peers) was a much stronger predictor of initiation into alcohol use than perceived approval of drinking. However, peer group influences on the onset of drinking haven't been shown consistently. For example, Kandel and Andrews (1987) found no influences of peer group variables on the initiation into alcohol use. Peer group influences should not only be found on the first experience with alcohol use, but also on the timing of the first whole drink. In fact, peer group influences may be stronger, because first use of alcohol often occurs in the family context such as taking sips of adults drinks, whereas heavier drinking often will happen in peer groups. We assume an earlier onset of drinking in those reporting associations to peer-groups

whose members have a positive attitude to alcohol use. The participants were asked „How much did your peer-group oppose getting drunk?" Participants who were older than 19 years had to answer this question in relation to the time they were 15 to 19 years old. There were four alternatives ranging from „strongly oppose" to „do not oppose at all".

Pubertal timing. Timing of physical maturation may play a role in the early initiation of health risk behaviors (Tschann et al., 1994). Early substance use among early maturers may stem from social processes, such as being perceived as older and more mature than other same-age adolescents, thus socializing with older peers, and (as a result) having greater opportunity and perhaps pressure to engage in substance use. Because girls mature earlier than boys, these processes are expected to be particularly strong for early maturing girls.

For example, Silbereisen, Kracke, and Nowack (1992) showed that girls with late onset of menarche had a lower probability to drink alcohol in early adolescence. Magnusson, Stattin, and Allen (1986) found higher rates of problem behavior such as heavy drinking among early maturing girls. In early adulthood, however, differences in the consumption of alcohol between early maturing females and other females were no longer obvious. On the other hand, Tschann et al. (1994) reported only a small tendency of higher drug-sampling – which means the sum of experiences with different drugs – in early maturing girls.

In our investigation, we asked for the time of the onset of menarche in girls and time of voice breaking in boys. Those girls were defined as early maturing who had their menarche before the age of 12. This group consisted of 13% of the female sample. In the same way, males reporting a voice breaking before the age of 13 were defined as early maturers (18%).

We again used Cox Regression analyses to test our hypotheses. In our first step, we ran analyses in the subgroups of East and West Germans in 1991 and 1996. Predictors were gender, peer-acceptance of drinking, parental monitoring, and parental education.

[Insert Table 3]

As can be seen from Table 3, peer acceptance of getting drunk is the most consistent predictor of an early onset of drinking. With the exception of East Germans in 1996, men reported an earlier onset of drinking compared to females. Higher parental monitoring delayed the onset in 1991 but not in 1996. Parents' educational level did not influence the initiation of alcohol use.

In a second set of analyses we ran separate analyses for males and females, including pubertal timing as independent variable (Tables 4 and 5). In females, an earlier onset of menarche was associated with an earlier onset of drinking in three of the four groups. An earlier voice breaking in males was associated with an earlier initiation into alcohol use in two of the four subgroups.

Repeating the analyses with the 13 to 19 year old participants, we again received similar coefficients, although a part of them was no longer significant due to the reduced sample size.

[Insert Table 4 and 5]

Our data support the role of peers in the initiation into alcohol use. In fact, positive attitudes of peers to getting drunk were the strongest influence on the age of initiation. We assume that the first whole drink often is consumed in the context of same age peers. Unfortunately, we have no data on the situational context of initiation.

We are not sure why parental monitoring influenced the onset of drinking to a significant amount only in the 1991 but not in the 1996 sample. Looking at the likelihood coefficients, the differences were, although nonsignificant, in the same direction in 1996. In addition, we only used a global measure of parental monitoring which may not be sensitive enough to measure all aspects of parental influences. Comparing the two samples, we found a small but significant difference in frequency of parental monitoring with the 1996 sample reported higher levels (t-Test, $p < .04$). Further research is needed on the influence of monitoring on the initiation into alcohol use.

The result that parents' education - as an indicator of social class - did not influence the initiation of drinking is consistent with previously reported data by Tschann et al. (1994) on the onset of drug sampling. Drinking may be more widespread in lower classes, but adolescents of higher social classes may have better financial resources to buy alcoholic beverages.

Early pubertal timing increased the risk of early initiation into alcohol use, especially in females. Because in girls physical maturing starts at an earlier age compared to boys and because early pubertal timing gives them access to older males, they may be at an even higher risk of early initiation into alcohol use. Further more, the age of onset of menarche is a more valid indicator of pubertal timing, compared to the age of voice breaking, because it is more remarkable and, therefore, better remembered. This may increase the probability of significant effects in the female sample.

At the beginning of our paper we stated that an early onset of drinking may be associated with higher alcohol consumption in later years. We correlated the age of onset of drinking with the reported frequency of alcohol use during the previous month and during the previous year. An earlier initiation was associated with higher monthly use in East ($r = -.08$, $p < .004$) and West ($r = -.18$, $p < .0001$). This holds true also for the annual use (East: $r = -.13$, $p < .001$; West: $r = -.14$, $p < .001$). The small effect size is, in part, due to a ceiling effect. The highest frequency of annual drinking that was defined by at least once per month, was reported by 49% of our participants. The

correlation size did not differ between younger and older participants. The age of onset accounted for 0.6 to 3.2% of the variability of the frequency of actual alcohol consumption.

In sum, we showed small, but significant East-West differences in the onset of drinking, which favored a somewhat earlier onset among East Germans. The influences on the onset, acceptance of getting drunk by peer group members, early pubertal timing, and parental monitoring, did not differ between the Eastern and Western samples, and showed only small differences between the two points of measurement. We conclude that these factors reflect influences of general developmental processes, at least in European or Western countries. This assumption is supported by some comparable results of US-American studies on the onset of drinking. We are aware of the fact that we only had retrospective data to analyze, which may be subject to various distortions, such as problems of recall. However, data on the younger age group replicated the findings from the full sample. The subjectivity in judgements and evaluational standards may be another source of bias. This criticism is, however, weakened by the correspondence of our data to previous research findings.

In addition, we want to encourage longitudinal studies to test causal relationships between the variables associated with the onset of drinking in East and West Germany.

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Table 1: Number of Participants

Age	*East 1991*	*West 1991*	*East 1996*	*West 1996*
13-14	191	329	177	180
15-16	148	292	233	221
17-18	138	281	200	182
19-20	204	337	202	185
21-22	184	352	159	208
23-24	180	383	181	218
25-26	111	253	119	156
27-28	87	207	155	170
29	41	106	78	62
Sum	1284	2540	1504	1582

Table 2: Prediction of the onset of serious drinking (Cox Regression) -2 Log Likelihood 78425.91, Chi^2=79.61 p< .0001

Variable	*B*	*S.E.*	*Wald*	*df*	*Sig*	*Exp.(B)*
Nation (1=West, 2=East)	.17	.03	34.05	1	.0001	1.18 ***
Time (1=1991, 2=1996)	-.05	.03	3.40	1	.065	.95 +
Gender (1=Male, 2=Female)	.18	.03	36.31	1	.0001	.84 ***
Nation * Time	-.10	.06	2.78	1	.095	.91 +
Nation * Gender	-.06	.06	1.08	1	.30	.94
Gender * Time	-.00	.06	.01	1	.94	1.00
Nation * Time * Gender	-.07	.12	.37	1	.55	.93

+ p<.10 *** p<. 0001

Table 3: Prediction of the onset of drinking. Comparison of Eastern and Western Germans, 1991 and 1996 (Cox Regressions)

	East Germans		*West Germans*	
Variable	B	Exp. (B)	B	Exp. (B)
		1991		
Gender	-.14	.87 +	-.21	.81 ***
Peer acceptance of drinking	.28	1.32 ***	.31	1.36 ***
Parental monitoring	-.21	.81 **	-.10	.91 +
Parental education	-.11	.89	-.01	.99
	-2 Log Likelihood 8029.78 Chi^2=30.51 p<.0001		-2 Log Likelihood 18860.55 Chi^2=62.96 p<.0001	
		1996		
Gender	-.07	.93	-.16	.85 *
Peer acceptance of drinking	.24	1.27 ***	.31	1.36 ***
Parental monitoring	-.01	.99	-.07	.93
Parental education	.02	1.02	.03	1.04
	-2 Log Likelihood 10796.39 Chi^2=14.60 p<.006		-2 Log Likelihood 12137.64 Chi^2=36.05 p<.0001	

*** p < .001 ** p<.01 * p < .02 + p<.07

Table 4: Prediction of the onset of drinking. Comparison of Eastern and Western German Males, 1991 and 1996 (Cox Regressions)

	East Germans		*West Germans*	
Variable	B	Exp. (B)	B	Exp. (B)
		1991		
Peer acceptance of drinking	.14	1.15 *	.19	1.26 *
Parental Monitoring	-.26	.77 *	-.06	.94
Parental education	-.15	.86	-.12	.89
Pubertal timing	.16	1.17	.23	1.26 ++
	-2 Log Likelihood 3933.15		-2 Log Likelihood 8701.41	
	Chi^2=16.35 p<.003		Chi^2=32.04 p<.0001	
		1996		
Peer acceptance of drinking	.14	1.15 **	.20	1.22 **
Parental monitoring	.10	1.10	-.11	.90
Parental education	-.06	.94	.04	1.04
Pubertal timing	.27	1.31 +	.24	1.28
	-2 Log Likelihood 4685.54		-2 Log Likelihood 5361.33	
	Chi^2=9.71 p<.05		Chi^2=21.24 p<.0003	

*** p < .001 ** p<.01 * p < .02 ++ p <. 05 + p<.10

Table 5: Prediction of the onset of drinking. Comparison of Eastern and Western German Females, 1991 and 1996 (Cox Regressions)

	East Germans		*West Germans*	
Variable	B	Exp. (B)	B	Exp. (B)
		1991		
Peer acceptance of drinking	.19	1.21 **	.20	1.23 ***
Parental Monitoring	-.11	.89	-.14	.87 +
Parental education	-.08	.92	.08	1.08
Pubertal timing	.35	1.43 +	.20	1.22
	-2 Log Likelihood 3077.84 Chi^2=13.12 p<.01		-2 Log Likelihood 7198.72 Chi^2=35.08 p<.0001	
		1996		
Peer acceptance of drinking	.08	1.08	.24	1.27 ***
Parental monitoring	-.12	.88	.01	1.01
Parental education	.03	1.03	-.02	.98
Pubertal timing	.67	1.96 ***	.32	1.37 *
	-2 Log Likelihood 4594.90 Chi^2=23.20 p<.0001		-2 Log Likelihood 4725.12 Chi^2=25.01 p<.0001	

*** p < .001 ** p<.01 * p < .05 + p<.08

Figure 1: Proportions of onset of drinking in East and West Germany in 1991 (Survival function)

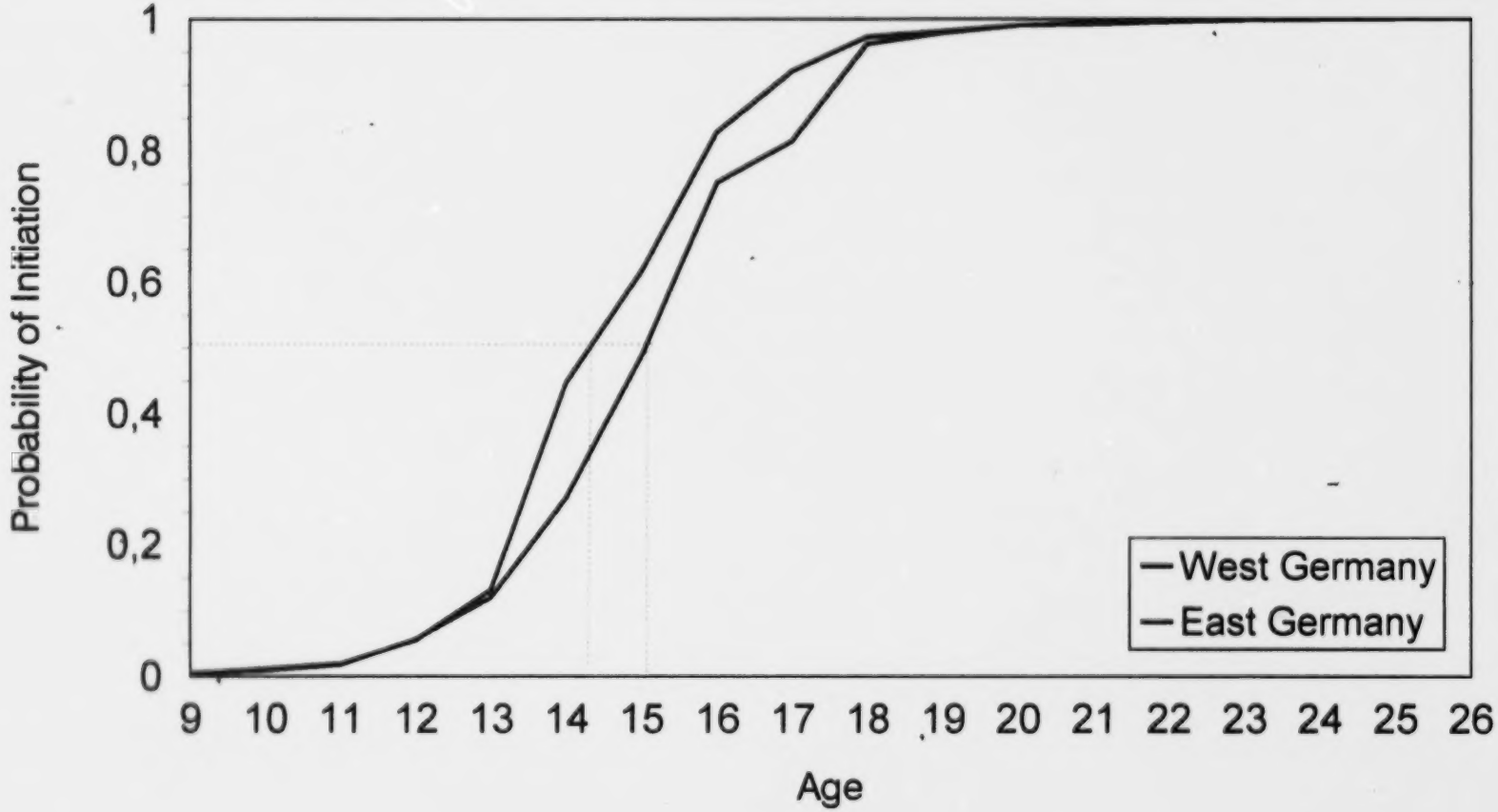

Figure 2: Proportions of onset of drinking in East and West Germany in 1996 (Survival function)